

Phasmids from Sabah

Robert Bradburne, 26 Royal Avenue, Tonbridge, Kent, TN9 2DB, UK.

Abstract

This paper describes a trip to six locations in Sabah, Borneo, during October 2003. A total of around 20 species of stick insects were found at four of these locations, including an undescribed species found at 3300m on Mount Kinabalu. The most commonly encountered species in the lowland forest were *Lonchodes* spp., *Haaniella* spp., and *Asceles margaritatus*.

Key words

Phasmida, Borneo, Sabah, Sukau, Kinabalu, Danum Valley, *Haaniella*, *Asceles*, *Prosentoria*, *Necroscia*, *Presbistus*, *Carausius*, *Phenacephorus*, *Dinophasma*.

Introduction

In October 2003 I travelled to Sabah in North Borneo to spend two weeks searching for the wildlife of the region. Our group stayed in six locations, four of which yielded many species of phasmid. The rainy season had started early and therefore it frequently rained all afternoon, and often into the night. However, this did not seem to stop the insects from being active, although it did at times make moving through the jungle quite a challenge. All identifications and sizes given in this article are from photographs taken on the trip, and therefore must be viewed with a degree of caution.

Our first location (where we found no phasmids) was just outside the capital Kota Kinabalu, next to the sea in a largely agricultural region. One of the trees at the Lodge where we stayed showed significant feeding damage, but after much hunting this turned out to be due to a large (1.5cm) yellow weevil rather than stick insects. The second area we visited was a small, remote coral island in the Turtle Islands National Park. Unsurprisingly, we did not find any phasmids there either.

Sukau, Kinabatangan River

Although we spent two nights here, it was only safe to go out on one of these due to the heavy wind and rain. We spent three hours investigating a limestone hill which rose around 100m above the river. It was raining quite heavily, but phasmids were still quite active. *Asceles margaritatus* Redtenbacher, 1908 nymphs and adults were reasonably common here on low growing vegetation. Another flying species was also found that bore superficial resemblance to *A. margaritatus*, but was less robust and had wings to the end of its abdomen (figure 1). We also found one male sub adult Lonchodinae species which I could not identify from the picture taken.

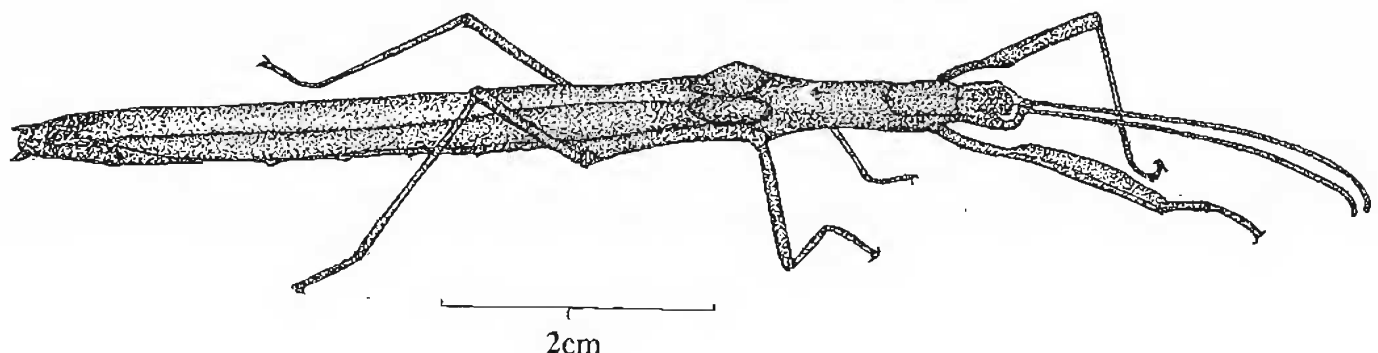


Figure 1. Adult female found on low-growing vegetation at Sukau. Mottled all over in light and dark browns and dark greens.

The most common insects however were *Haaniella echinata* Redtenbacher, 1906. The majority of these were nymphs of varying sizes, although we did find an adult female near the end of our trail. One sub-imaginal female gave a very good defensive display when disturbed, showing off clearly her bright red rear leg patches and blue abdominal coloration. I was impressed by the size of the insects, which seemed significantly larger than the ones I had seen in culture. The largest female that we found, however, looked very different from the other *H. echinata* females that we had found. It was a pale creamy colour all over the thorax and abdomen, with darker brown legs (figure 2). From its general shape, and the tip of the abdomen, it looked much more like the *Haaniella saussurei* Kirby, 1904 shown in plate 3B in Bragg (2001), although this species is not recorded from the Sukau region in Bragg (2001). On further examination, Phil Bragg has suggested from what is visible of the

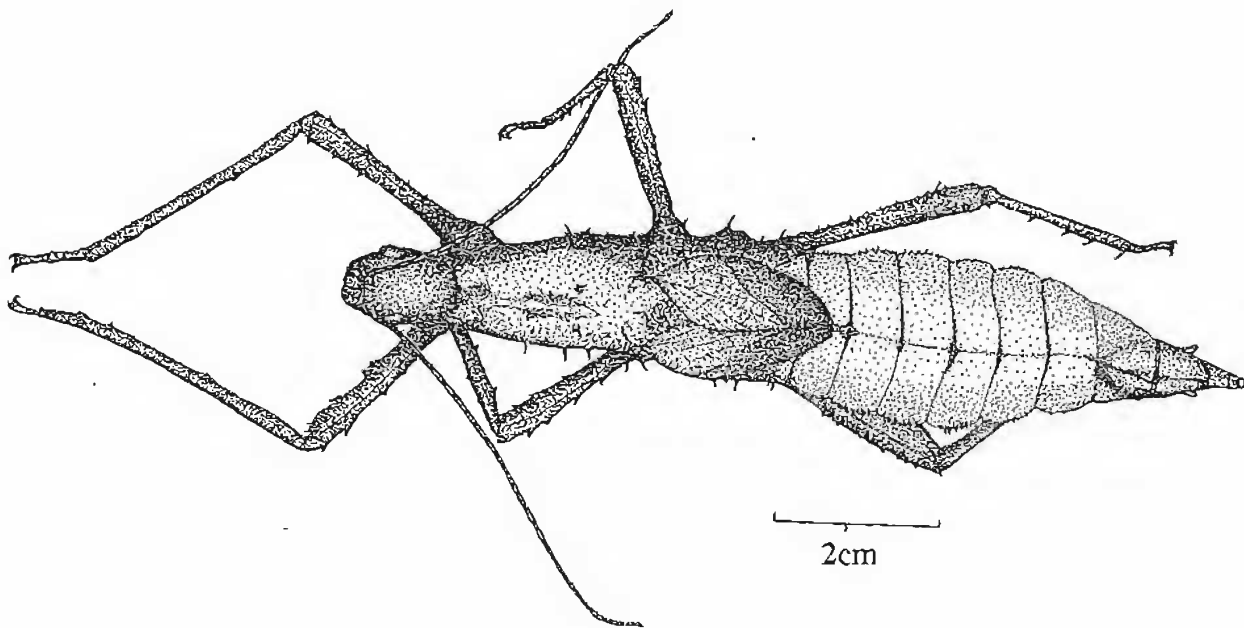


Figure 2. Adult female *Haaniella* sp. found at Sukau.

mesonotal spines on the photograph that it probably is *H. echinata* (Bragg pers. comm.).

The return to our lodge necessitated climbing through the canopies of two fallen trees and wading knee deep through water, and so, with further heavy rain the following day and night we were unable to do any further insect hunting at Sukau.

Danum Valley

We had three nights based at the Borneo Rainforest Lodge to explore this extraordinary piece of virgin rainforest with a very enthusiastic guide. Leeches were extremely numerous by day and night, so extra vigilance was needed by the group as we pushed through the wet undergrowth. We saw phasmids during the day here, the first of which I caught on our first afternoon walk (in the rain!). This was a small almost black flying male (5.5 cm long) with a crest of fine spines on the back of its head and a clear white stripe across its forewings (figure 3). It has been suggested to me that this is *Paradiacantha fusca* Redtenbacher, 1908 (Bragg, pers. comm.).

On our first night walk along the paths around the lodge we found a *Prosentoria arrogans* Brunner von Wattenwyl, 1907 male with curved "horns" on his head and later, a female with straight "horns" of the same species (figures 4-8). The females were more similar to those described by Bragg (Bragg 2001) as *Prosentoria* sp. from "Niah", especially

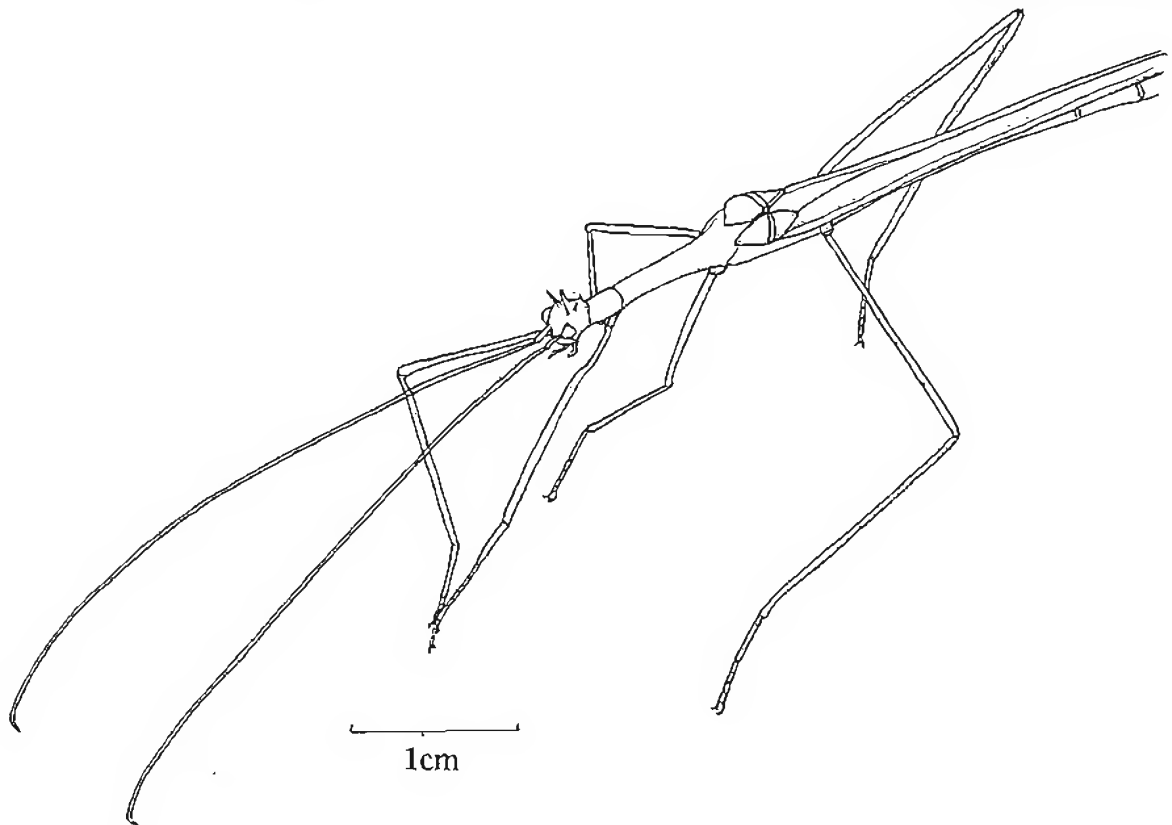


Figure 3. *Paradiacantha fusca* male found just outside the Borneo Rainforest Lodge in Danum Valley.

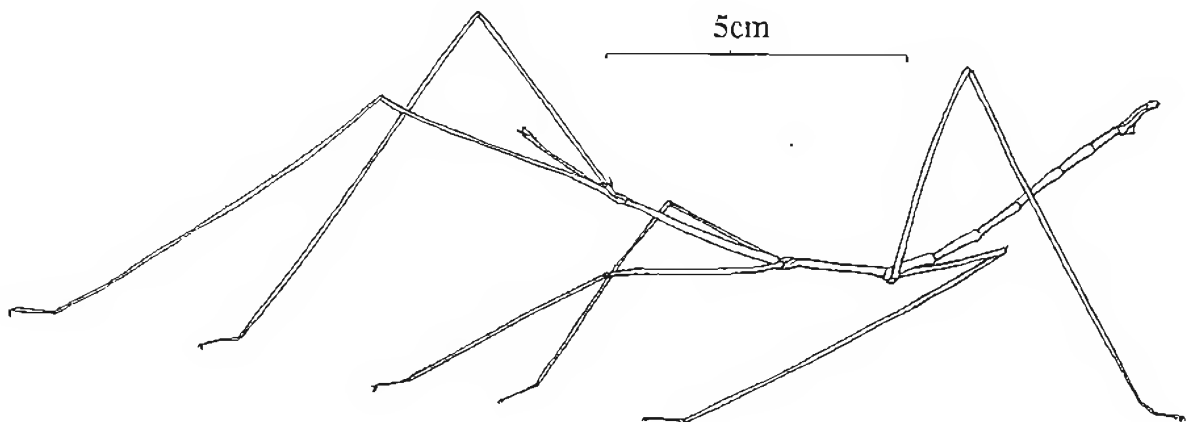
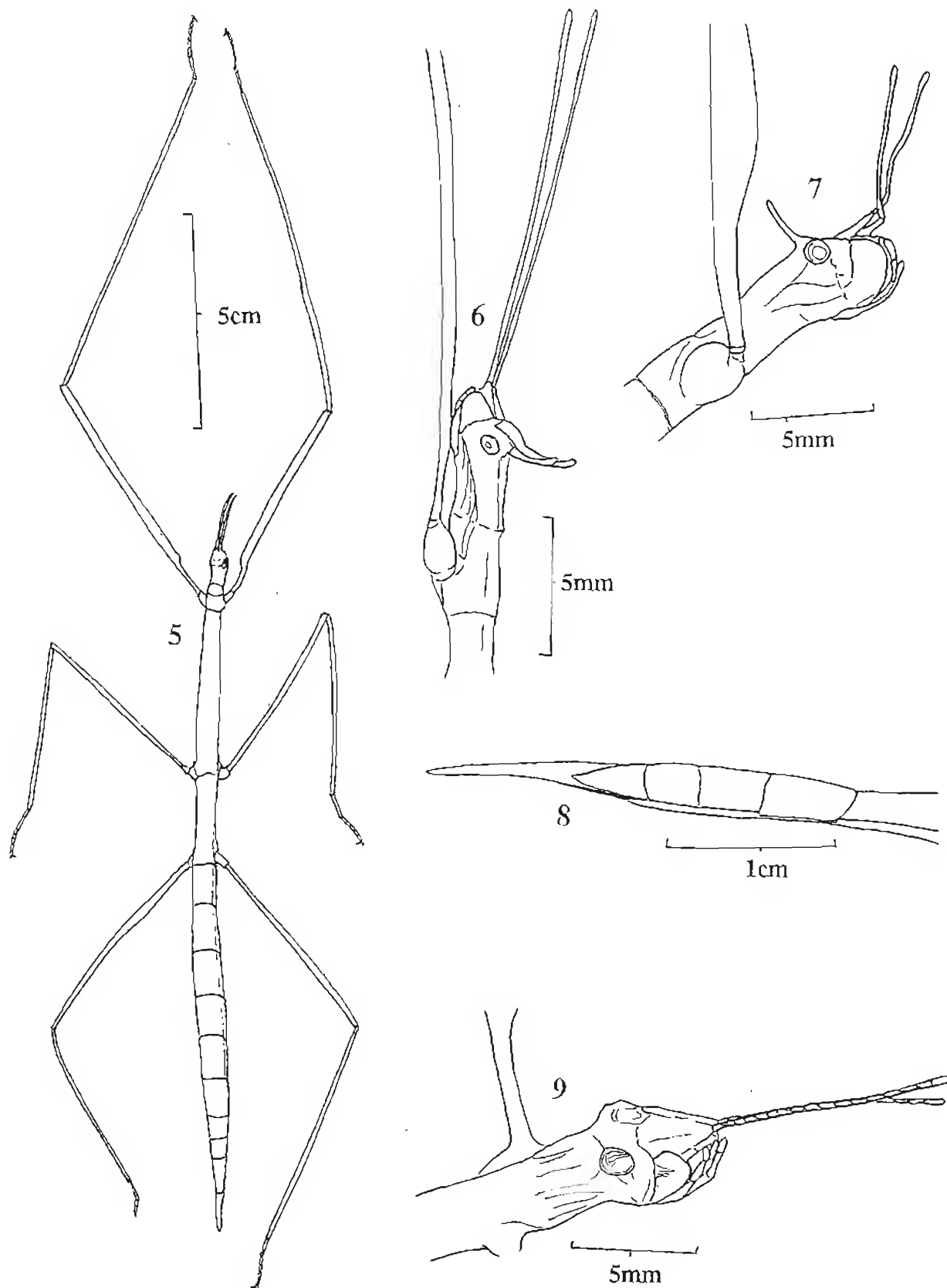


Figure 4. Adult male *Prosentoria arrogans* found on paths at Danum Valley.

with their longer, more slender shape and finer operculum (compare figure 8 with figure 19, female from Mt Kinabalu). We also once again found *A. margaritatus* adult males and females on very low growing vegetation and a couple of *H. echinata* nymphs (much less common than at Sukau). Much more numerous here were *Lonchodes* species, of which I think we found five during our stay. We never found males and females together and therefore I have not attempted to identify any of the males found. All of the female insects that we found were adults on this first night and diagnostic features that are visible on the photographs suggest they may have been some of *L. hosei* (the most common), *L. rusticus*, *L. thami*, *L. malleti* or *L. amaurops*. However, with the large amount of variation seen,



Figures 5-8. *Prosentoria arrogans* found on paths at Danum Valley.

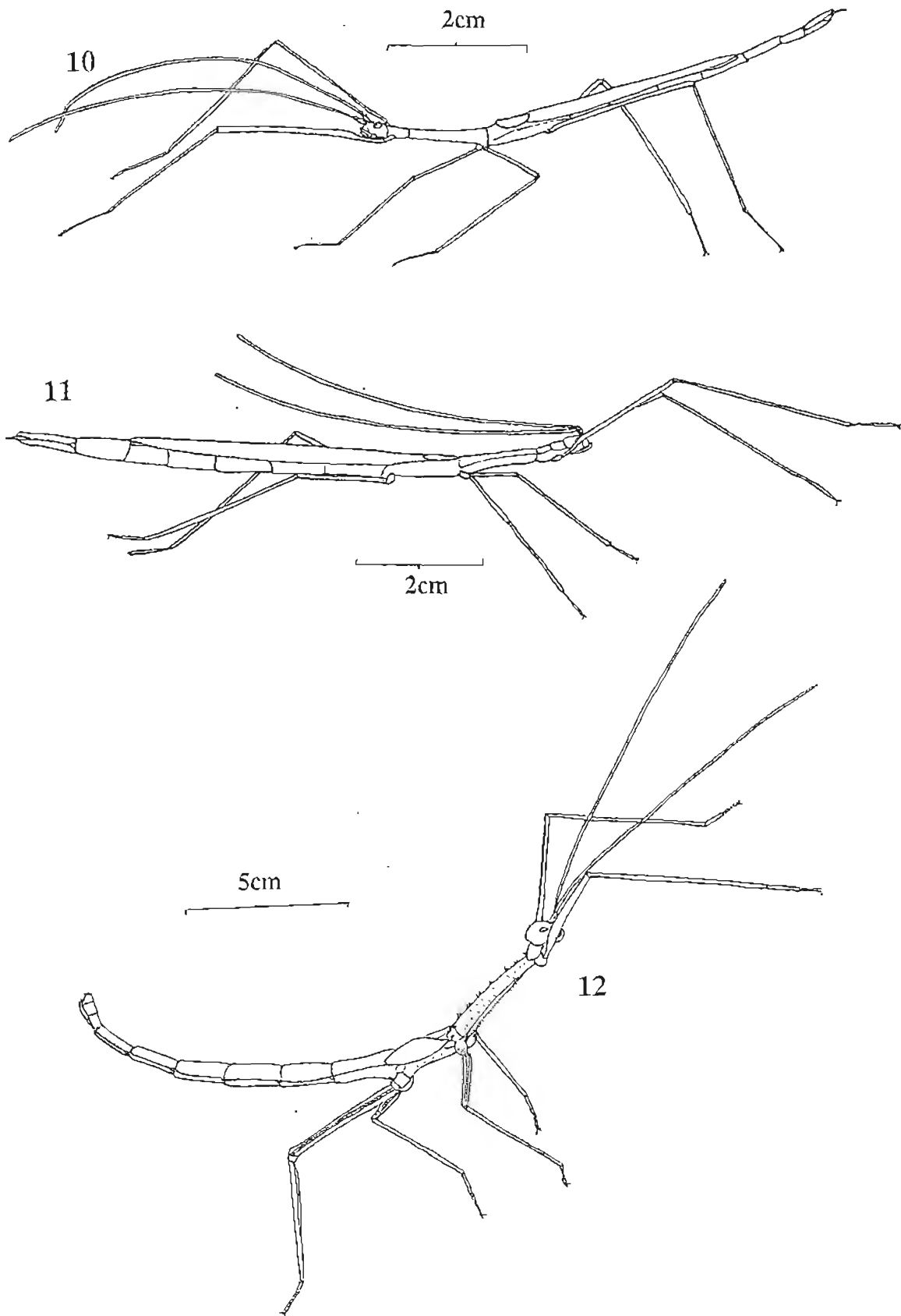
5. Adult female (a dull green colour, although brown colour forms were also found here).

6. Head of male showing curving "horns".

7. Head of female found at night showing similar, forward-curving horns.

8. Dorso-lateral view of female's abdomen.

9. Head of female found in daytime, without horns.



Figures 10-12. Phasmids found at Danum valley.

10. Adult male *Necroschia* sp.

11. Adult female *Necroschia* sp.

12. Sub adult female, possibly a *Diesbachia* species found feeding on giant gingers.

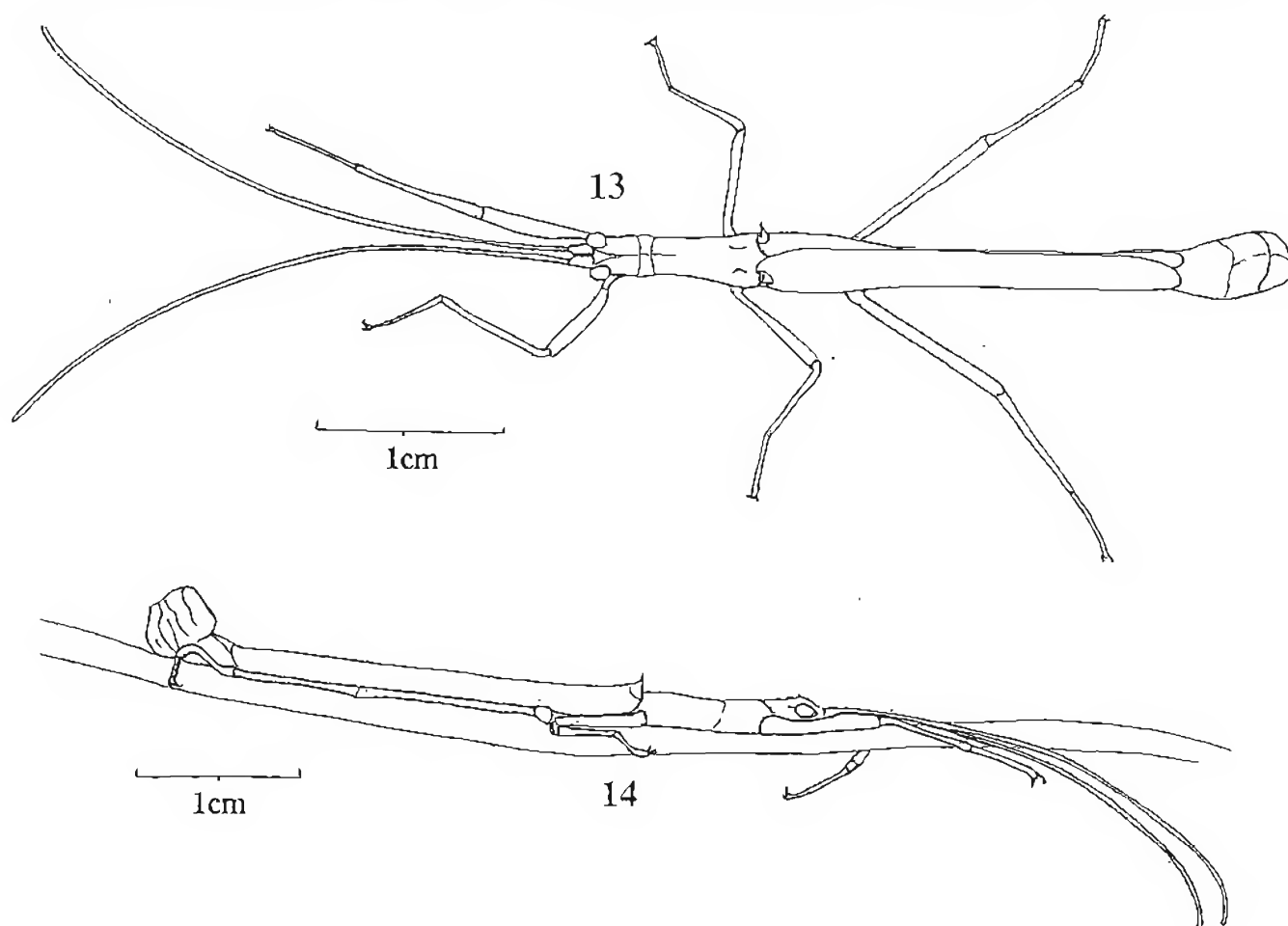
without actual specimens, verification of these suggestions is not possible.

In addition, we found adult males and females of *Necroscia* sp. (figures 10-11) on vegetation around head height at the edge of the road. The insects were a very vivid green colour, with red eyes and white to very pale pink wings. One female was parasitised by small red mites clinging to some of the joints on her abdomen and thorax.

The most impressive insect found during the night was a female nymph of what was possibly a *Diesbachia* sp. (Bragg, pers. comm.). Our guide had told me that the "really big insects" lived on the giant ginger that grew in that region by the roadside. Feeding damage on the plant gave this sub adult female (figure 12) away. She was already 18cm long and was a brilliant green colour all over, with pinkish red spines on her thorax and pink eyes. The nymph most closely fits the description of *Diesbachia sophiae* Redtenbacher, 1908, although it seemed to be too big to mature into this species (recorded as being only 14cm long). Although we searched the surrounding gingers very carefully, we did not find another example of this species during our stay at Danum.

The following morning our guide had found another *P. arrogans* at the lodge. However, this specimen was completely devoid of "horns" (figure 9).

The second night we were taken on a night drive and therefore had little time for insect spotting. A brief walk along the road however turned what looked like up a *Lonchodes modestus* Brunner von Wattenwyl, 1907 female which was nearly black with white markings



Figures 13-14. Male *Presbistus* sp.?

13. Dorsal view.

14. Lateral view showing large abdominal "club" and resting position on a small stick.

and vivid red hind femurs, a small female *H. echinata* nymph and a bright green male *Necroscia* sp.

The next morning we trekked for seven hours through virgin forest. We saw few animals, but 2km away from the Borneo Rainforest Lodge I did find a small flying stick insect (figures 13-14) which was beautifully camouflaged, being mottled green and brown. Its large club-shaped abdomen suggests it was a *Presbistus* species, although it may only be safe to say it was within the Aschiphasmatini.

That night I was keen to go up to the aerial walkway to look for insects 50m up in the canopy (hoping for *Phyllium* spp.). However, all that we found was one small flying species several meters away that I could not identify. On returning to the ground and the road into the lodge, however, we were more successful.

I found an adult female *Haaniella* sp. which looked a different overall shape from *H. echinata* (but it was impossible to verify this from the photograph), as well as *Phenacephorus auriculatus* Brunner, 1907, a male and female *Necroscia* sp. (figures 10-11) and a female *Lonchodes* sp.

Given more time I am sure we would have found many more phasmids. Our guide did search for leaf insects until midnight for us but found none, but even so, the diversity at Danum was well worth exploring.

Kinabalu Park

We had factored in an extra day at Kinabalu National Park to help us to acclimatise to the altitude before climbing the mountain. This gave two nights for phasmid hunting before the climb. We were staying just outside the park but ate in the restaurant there in the evening. Therefore our first outing was along the road that runs past the staff quarters back to the "Kinabalu Balsam Restaurant". Opposite the staff bungalows we found several brown *Carausius chani* Hausleithner, 1991 (the adult female had a large tubercule on her 5th abdominal segment) feeding on a low growing plant with large, very thick, leathery leaves. The road then cuts through a small section of forest for about 50m. Here we found adult females of both the micropterous and macropterous forms of *A. margaritatus* (figures 15-18). We also found a female *Phenacephorus spinulosus* Hausleithner, 1991 on the low growing vegetation.

The following evening, I was keen to follow the Silau Silau trail for a short distance as we had walked along it during the day and it seemed safe to walk it in the dark. On descending to the river, we spotted a male

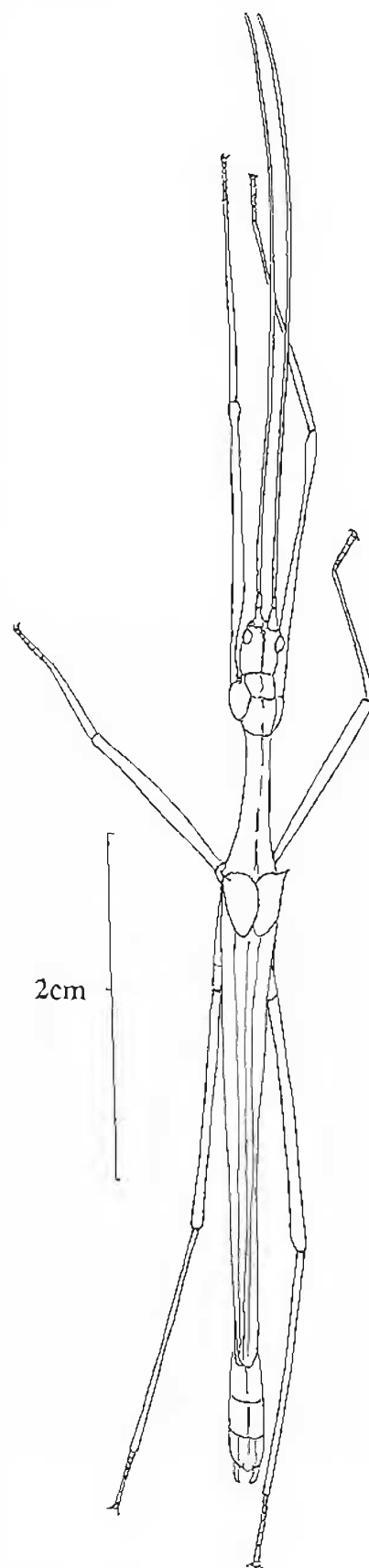
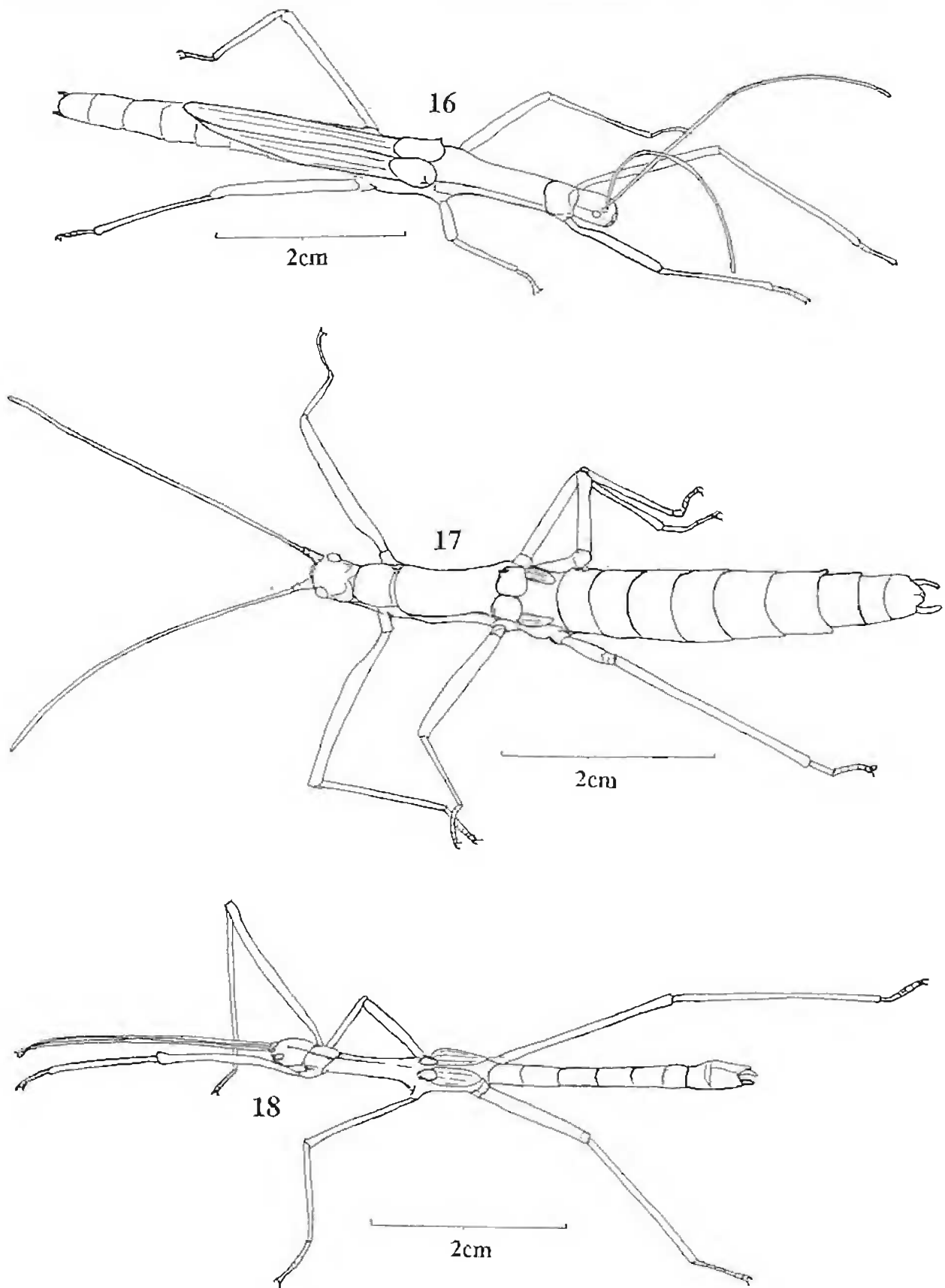
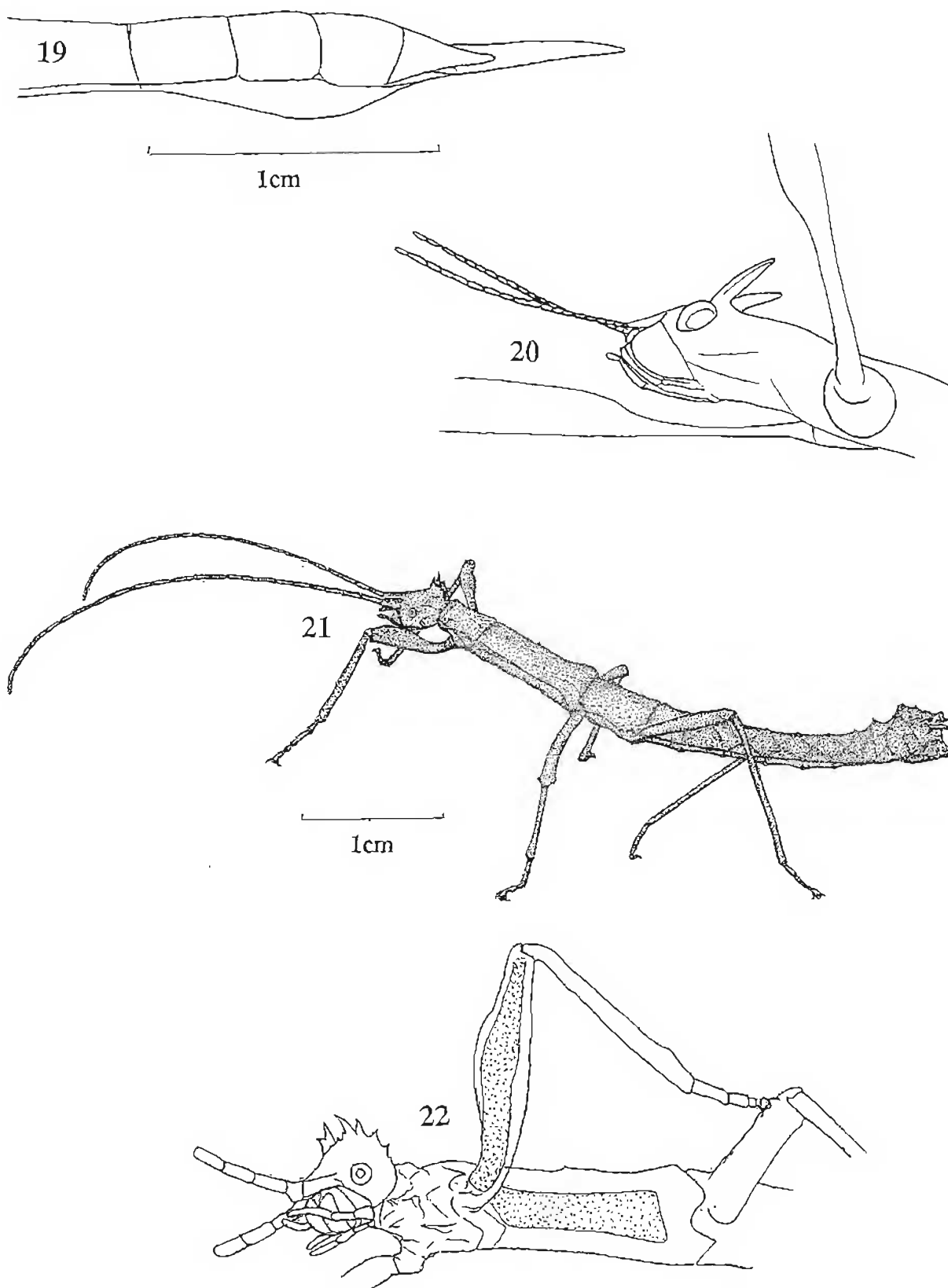


Figure 15.
Asceles margaritatus male of macropterous form.



Figures 16-18. *Asceles margaritatus*:
16. Female of macropterous form.
17-18. Micropterous form, 17. female, 18. male.



Figures 19-22.

- 19-20. Adult female *Prosentoria arrogans* found at Kinabalu National Park Headquarters. Olive green in colour. 19. Abdomen. 20. Head showing leaf-like "horns".
- 21-22. An undescribed species found at 3300m on Mount Kinabalu, close to the Laban Rata Rest Hut. 21. Lateral view. 22. View showing extensive red patches on the thorax and front legs (stippled regions).

Phenacephorus sp., but once we were on the trail itself we found no further insects at all and turned back after about 400m. Instead we took the cut through at the top of the Silau Silau trail from the main road up to the Balsam Restaurant. This was a much less used path with lots of low growing vegetation. We found a nymph of *Necroscia* sp. and on the same bush (which had tessellated, hairy leaves) an adult female *Dinophasma kinabaluense* Bragg, 2001. Further up the path I was very pleased to find an adult female *Lonchodes harmani* Bragg and Chan, 1993 hanging from some higher growing plants, followed by a *P. arrogans* female, this time with clear leafy projections pointing backwards from her head (figure 20). This was a much stockier specimen than those found at Danum Valley, with a much deeper operculum (compare figure 19 with figure 8). We found a couple of small brown Lonchodinae males which I could not identify, and a male of the micropterous form of *A. margaritatus* (figure 18). Possibly the highlight of the evening, however, was finding an adult female *Haaniella scabra* Redtenbacher, 1906 with an egg in her ovipositor ready to be laid. She was at the base of a small shrub, virtually on the leaf litter and therefore was possibly descending to try to find a suitable oviposition site.

The following morning we climbed from 1600m to the Laban Rata resthouse (3300m) through thick cloud, where we remained for the afternoon. We then started our ascent of the summit (4095m) at 0230 the following morning. Having done the first 100m of the climb we entered a grove of ericaceous bushes which were a little taller than head height. I found a small stick insect feeding on these bushes which was unlike any that I had read about in *Phasmids of Borneo* (Bragg 2001). The insect was very pretty, with extensive red patches under its forelegs and thorax (figures 21-22), but rough and mossy above (rather reminiscent of *Creoxylus spinosus* Fabricius, 1775). I thought that this might be a new species, but since have found from Phil Bragg that he has it in his collection already and is in the process of describing it (Bragg pers comm.).

We left the mountain that day and headed for Poring Hot Springs to recuperate. Having got up at 0200, we were tired and so went out immediately after dark (1930) and only found two stick insects on the Langanan Waterfall trail, a male *H. echinata* nymph and a male *A. margaritatus* (macropterous form). The following day we visited the butterfly farm to see their captive *Phobaeticus?* sp. (very long, yellow eyes in the male) and *Haaniella* specimens (the only *Haaniella* we could see in fact was a dead one which had been set out on the top of the log, presumably for easy viewing!). A huge thunderstorm that evening effectively closed our insect viewing chances for the trip, but having already found around 20 species, including one at 3300m, I was content to call it a night.

Reference

Bragg, P.E., (2001) *Phasmids of Borneo*. Natural History Publications (Borneo), Kota Kinabalu.